

CERTIFICATION

I, Takao Kohno; 4-3, Tsuriganecho 2-chome, Chuo-ku, Osaka
540, Japan, hereby certify that I am the translator of the
documents in respect of an application for a patent filed in
Japan on the 6th day of September, 1996
(Japanese Patent Application No. 8-236795)

and certify that the following is a true and correct
translation to the best of my knowledge and belief.

KOHNO PATENT OFFICE



KOHNO Takao

Dated this 17th day of September, 2003

[Name of the Document] Specification

[Title of the Invention] Internet Television Receiver

[Claim for Patent]

[Claim 1] An Internet television receiver comprising:

television signal receiving means for receiving a television signal;

picture signal outputting means for extracting a first picture signal from the television signal received from said television signal receiving means, and outputting it;

displaying means for displaying an image outputted from said picture signal outputting means;

sound signal outputting means for extracting a sound signal from the television signal received from said television signal receiving means, and outputting it;

a speaker for outputting sound from said sound signal outputting means;

modulating/demodulating means for converting digital data into a sound carrier signal for transmission and demodulating the sound carrier signal into the digital data for reception in order to transmit and receive a digital data via a telephone line;

data converting means for converting for transmitting a digital data to said modulating/demodulating means, and receiving a digital data from the modulating/demodulating means, and converting the received

digital data into a picture signal;

picture signal outputting means for supplying an output from said data converting means to the displaying means;

character signal generating means for generating a character signal and displaying it on the screen of said displaying means; and

character signal generation controlling means for detecting the state of transmission and reception of digital data of said modulating/demodulating means, and controlling said character signal generating means so as to generate a character signal to indicate the transmission or reception state.

[Claim 2] An Internet television receiver as set forth in claim 1, wherein displaying of transmission or reception state by said character signal generation controlling means is executed when the television receiver is in a state of displaying a television receiving screen.

[Claim 3] An Internet television receiver as set forth in claim 2, wherein displaying of transmission or reception state by said character signal generation controlling means is executed, and then the picture signal converted by said data converting means is automatically displayed on the screen.

[Detailed Description of the Invention]

[0001]

[Field of Industrial Application]

The present invention relates to an Internet television receiver for receiving information through the Internet, taking in the information, converting it into video signals, and displaying it on a television receiver.

[0002]

[Prior Art]

Recently, owing to the popularity of personal computers, information is transmitted and received widely by using the Internet. In collecting information through the Internet according to prior arts, it has become possible to transmit information ranging from characters which are sent by E-mail to images and sounds.

[0003]

Therefore, recently, more and more users are using the Internet as the site of information presentation. It is the WWW (World Wide Web) that is noticed as the server for providing such information.

[0004]

The reason why the WWW server is drawing attention is mainly due to the wide spread of client software for retrieving information by using a graphical menu. By the development of such software, it becomes easier to search for information on the network, and the traffic volume to the WWW server increased rapidly, and the users have come to notice the server as the publicity media, and many users have come to use it.

[0005]

To view information of the WWW server, as mentioned above, the client software is needed. For example, the client software is disclosed in pages 164 to 167 of "Internet Handbook for Corporate Users", an extra output of Nikkei Communications published by Nikkei BP (November 30, 1994).

[0006]

To view information of the WWW server through the Internet, it is required to have a personal computer and use a client software. Actually, however, there are many people who are interested in such information, but not daring to buy a personal computer. They only want to view information through the Internet easily.

[0007]

In view of the above, an idea of employing an ordinary television receiver used in the general household as a displaying apparatus for displaying the Internet information is proposed. Accordingly, without having to purchase a personal computer, only a device for receiving the Internet information is built in or attached to the television receiver, and the television receiver fulfills its original function while the user is not viewing the Internet information, which is very convenient for the user.

[0008]

However, to review the information of WWW server of the

Internet by such television receiver, it is necessary to connect once to the provider through the telephone line. Only by connecting the telephone line with the provider, the information can be acquired.

[0009]

This connection by the telephone line is made through a modem, and the users of personal computer who make communications can judge if connection is made or not as follows. That is, since the modem is sending data by sound, it is judged if the data is communicated or the telephone is connected by the sound.

[0010]

When a function for receiving the Internet is incorporated in the television receiver, it is possible to wait while watching the television broadcast while connecting to the provider, and such function is generally desired because the user can wait without being bored until connected.

[0011]

However, while receiving the television broadcast by the television receiver, since the sound of the television broadcast is delivered through the speakers of the television receiver, when connecting the communication line, it is impossible to judge if connected or not by the sound delivered from the modem because of the sound of the television broadcast delivered from the speakers.

[0012]

Accordingly, when the television program is displayed on the screen with the telephone line connected to the Internet, since the television broadcast is displayed by the television receiver, the user is devoted to the broadcast, and may forget that the telephone line is connected to the Internet. In particular, when the provider side is busy and information is not transmitted, the telephone line remains connected, and the charge of the telephone line is increased unknowingly.

[0013]

The present invention is devised in the light of the above problems, and it is an object thereof to present an Internet television receiver capable of recognizing the connection state of the telephone line on the screen, even while the television receiver having an Internet receiving function is receiving television signals.

[0014]

The present invention is an Internet television receiver characterized by comprising:

television signal receiving means for receiving a television signal;

picture signal outputting means for extracting a first picture signal from the television signal received from said television signal receiving means, and outputting it;

displaying means for displaying an image outputted from said

picture signal outputting means;

sound signal outputting means for extracting a sound signal from the television signal received from said television signal receiving means, and outputting it;

a speaker for outputting sound from said sound signal outputting means;

modulating/demodulating means for converting digital data into a sound carrier signal for transmission and demodulating the sound carrier signal into the digital data for reception in order to transmit and receive a digital data via a telephone line;

data converting means for converting for transmitting a digital data to said modulating/demodulating means, and receiving a digital data from the modulating/demodulating means, and converting the received digital data into a picture signal;

picture signal outputting means for supplying an output from said data converting means to the displaying means;

character signal generating means for generating a character signal and displaying it on the screen of said displaying means; and

character signal generation controlling means for detecting the state of transmission and reception of digital data of said modulating/demodulating means, and controlling said character signal generating means so as to generate a character signal to indicate the transmission or reception state.

[00015]

The present invention is an Internet television receiver characterized by that displaying of transmission or reception state by said character signal generation controlling means is executed when the television receiver is in a state of displaying a television receiving screen.

[0016]

The present invention is an Internet television receiver characterized by that displaying of transmission or reception state by said character signal generation controlling means is executed, and then the picture signal converted by said data converting means is automatically displayed on the screen.

[0017]

[Embodiment of the Invention]

Now the embodiment of the invention will be described with reference to the drawings. FIG. 1 is a block diagram showing an embodiment of the invention. The reference numeral 1 denotes a tuner, 2 denotes a VIF (video intermediate frequency) circuit, 3 denotes a video detector, 4 denotes a video amplifier, 5 denotes a first switching circuit for switching a video signal, 6 denotes a CRT (cathode ray tube), 7 denotes a SIF (sound intermediate frequency) circuit, 8 denotes a sound detector, 9 denotes a sound amplifier, 10 denotes a second switching circuit for switching a sound signal, 11

denotes a mixing circuit, 12 denotes a speaker, 13 denotes a remote controller (not shown) or an operating unit in a front panel of a television receiver, 14 denotes a microcomputer for performing various controlling operations for a television receiver, 15 denotes a on-screen display (referred to as an OSD hereinafter) circuit for generating an on-screen character signal, 16 denote a modem, 17 denotes a carrier amplifier for amplifying a carrier sound supplied from the modem 16, 18 denotes an Internet circuit for receiving Internet information data from the modem 16, converting it into a video signal and outputting a sound signal, 19 denotes a video outputting amplifier for outputting a video signal supplied from the Internet circuit 18, and 20 denotes a sound output amplifier for outputting a sound signal.

[0018]

Next, the operation of the invention will be described. First, for viewing a television broadcast, a desired channel is selected by the operating unit 13, and a tuning voltage in accordance with the selected channel is supplied by a microcomputer 14 to the tuner 1. Then a television signal of the selected channel is inputted to the VIF circuit 2, and then to the video detector 3 in which a video signal is extracted and supplied to the video amplifier 4. On the other hand, a television signal from the VIF circuit 2 is supplied also to the SIF circuit 7 where an SIF signal is detected, and a sound signal

is extracted by the sound detector 8 and supplied to the sound amplifier 9.

[0019]

In the Internet television receiver, while the user watches the television broadcast, the microcomputer 14 connects the first switch 5 to the video amplifier 4 and the video signal is outputted to the CRT 6. At the same time, the microcomputer 14 also connects the second switch 10 to the sound amplifier 9, and the sound signal is supplied to the speaker 12 through the mixing circuit 11. The sound signal is changed in the sound volume by controlling the sound amplifier 9. This is realized by controlling the sound amplifier 9 by the microcomputer 14 which is controlled by the operating unit 13.

[0020]

When the channel is selected, on the other hand, the microcomputer 14 controls the OSD circuit 15 so as to generate a character signal for displaying the channel number, and the character signal is supplied from the OSD circuit 15 to the first switch 5. At this point, the first switch 5 is controlled by the microcomputer 14 so as to switch over to the character signal from the OSD circuit 15. This OSD circuit 15 can display not only the channel character but also the sound volume adjustment, various adjustment modes and others.

[0021]

When receiving the Internet information, the operation is

described below while referring to the flowcharts in FIG. 2 and FIG. 3.

First, when the Internet connection mode is selected (S1) by the operating unit 13, the microcomputer 14 changes the screen from the television broadcast receiving screen to the Internet menu screen, and controls the OSD circuit 15 so as to display the menu screen as shown in FIG. 6. This menu screen is roughly classified in information (shop information, travel and sightseeing, news, education, amusement, local and enterprise information, original, search, E-mail). At the bottom of the screen, an outlook of the remote controller 42, that is the operating unit 13, is displayed and the function of each key of the remote controller 42 is shown, including for example, a cursor key 43 for making a selecting, decision key 44 for making a decision, and a key 45 for performing various operations for controlling the television receiver.

[0022]

When desired information is selected in this menu screen, a lower layer menu screen is displayed. For example, when travel and sightseeing is selected in the menu screen in FIG. 6, a selection menu screen of local regions is displayed as shown in FIG. 7. When desired information is selected, the telephone line 24 is connected to the provider which presents the information. At this time, the user can freely change over to a television broadcast screen. Or, the screen may be automatically changed over to the television broadcast screen.

[0023]

In such a menu screen, further, when desired information is selected by the operating unit 13 (S2), the microcomputer 14 transfers the data to the Internet circuit 18. The Internet circuit 18 causes the modem 16 to connect the telephone line to the provider (S3). If not in Internet connection mode, the screen remains in reception of the television broadcast (S10).

[0024]

When the modem 16 is connected to the telephone line (making a telephone call to the provider), carrier sound is generated from the modem 16 (S4). At the same time, the notice of start of connection of the telephone line is transmitted from the modem 16 to the Internet circuit 18 and this information is also supplied into the microcomputer 14. Upon receiving it, the microcomputer 14 performs a controlling operation to lower the sound volume of the sound amplifier 9 for amplifying the sound signal of television broadcast to a predetermined level, and the sound signal and the carrier sound from the modem 16 are mixed in the mixing circuit 11, and outputted to the speaker 12 (S5). As a result, when the user watches the television broadcast, the sound volume is lowered automatically, and the user can hear the carrier sound of the modem.

[0025]

At this time, when the user maintains the screen for receiving

Internet information without watching the television broadcast, as shown in FIG. 5D, a comment (including a tool bar, etc.) 47 is displayed at the top of the screen, and the Internet information is displayed below the comment 47, that is, an Internet receiving screen 49 appears. In this state, various tools can be selected and operated by a cursor 46 appearing on the screen, and the desired information (provider) can be also selected.

[0026]

Alternatively, the television broadcast and the Internet screen can be displayed in the television receiver as shown in FIG. 5E. That is, by dividing the screen into two parts, the television broadcast screen 48 can be shown on the left, and the Internet receiving screen 49 on the right.

[0027]

On the other hand, after connecting the telephone line, when the user changes over to the television broadcast screen, the microcomputer 14 generates the character signal telling that the telephone line is being connected is generated in the OSD circuit 15, and it is displayed in the CRT 6 together with the television signal (S6). As an example of this display, a message 32 "Now in the process of connection. Wait for a while" is displayed at the bottom of the screen 30 as shown in FIG. 4A. Aside from the message 32, a timer 31 or the like may be displayed to show the connection time. Besides,

when adjusting the sound volume, by displaying the bar outputted from the OSD circuit 15, the change of the carrier sound and the signal combined with sound signal may be made visible.

[0028]

When the telephone line is connected to the provider, data is received from the modem 16, and the notice of completion of connection is transmitted to the microcomputer 14 through the Internet circuit 18 (S7).

[0029]

Consequently, the microcomputer 14 returns the sound volume of the sound signal of television signal to the original level, and stop the output of the carrier sound (S8). Moreover, the OSD circuit 15 displays a message 34 "Connection is completed" together with the connection time by displaying a timer 33 (S9) as shown in FIG. 4B.

[0030]

When connected, upon receiving data from the modem 16 in the Internet circuit 18, video signal and sound signal are outputted. The video signal is supplied to the first switch 5 through the video output amplifier 19, and the sound signal is supplied to the second switch 10 through the sound output amplifier 20.

[0031]

Furthermore, even after completion of connection of the telephone line, if the provider is busy, data is not sent out

immediately. In such a case, the microcomputer 14 judges that data is not sent out while counting a predetermined time, and a message 37 "Server (or provider) is busy" is displayed as shown in FIG. 5F. By reading it, the user can immediately return to the Internet screen, and cut off the line, or connect to another provider. This message 37 may also be indicated as "Busy state".

[0032]

When the telephone line cannot be connected within a predetermined time (the telephone is not connected) (S11), the microcomputer 14 returns the sound volume of the sound signal of the television signal to the original level, and the output of carrier sound is stopped (S8). Further, the OSD circuit 15 displays a message 36 "Failed in connection", together with the connection time by displaying a timer 35 (S9) as shown in FIG. 4C. Thus, the telephone connection state can be recognized visually.

[0033]

If falling into the state as shown in FIG. 4B, FIG. 4C or FIG. 5F, the screen of the television receiver may be returned automatically to the Internet reception screen, or it may be automatically changed to the two-screen display as shown in FIG. 5E. Of course, it may also be designed so that the user is free to select the operation for automatically returning to the Internet reception screen or two-screen display.

[0034]

Display of connection state of the telephone line on the Internet reception screen is described below while referring to the diagrams in FIG. 8 through FIG. 10. First, in display of menu screen before connection of the telephone line, as shown in FIG. 5D, comment display areas 47 and a tool bar TB are displayed at the top of the screen, and an Internet receiving screen 49 is displayed at the bottom. In the display of comment display area 47 and the tool bar, a telephone mark and a box 50 is shown at the right side of the comment display area 47, and tool bar is displayed below as shown in FIG. 8B. At this point, the telephone mark is shown in an on-hook state, and the box remains white.

[0035]

In this state, when the telephone line is connected, the telephone mark is changed into a display 50 of a telephone in an unhooked state as shown in FIG. 8A. Then, when text data is transmitted via the telephone line, the box changes the color from white to red in accordance with the amount of transmitted data as shown in FIG. 9A. When the reception of data is completed, the entire box which has been white turns red so that the user can visually recognize the completion of the data reception.

[0036]

Similarly, when the image data is being received, the color

of the above-described box may be changed from white to blue. This helps the user to distinguish between the state of taking in text and the state of taking in images.

[0037]

[Advantages of the invention]

As described above, the present invention permits the user to recognize the state of the telephone line connection, even while enjoying television broadcast.

[Brief Description of the Drawings]

[FIG. 1]

A block diagram showing an embodiment of the invention.

[FIG. 2]

A flowchart of an embodiment of the invention.

[FIG. 3]

A flowchart of an embodiment of the invention.

[FIG. 4]

A diagram showing an example of on-screen display of the invention.

[FIG. 5]

A diagram showing an example of on-screen display of the invention.

[FIG. 6]

A diagram showing an example of on-screen display of a menu

screen of the invention.

[FIG. 7]

A diagram showing an example of on-screen display of a menu screen of the invention.

[FIG. 8]

A diagram showing an example of on-screen display of an Internet reception screen of the invention.

[FIG. 9]

A diagram showing an example of on-screen display of an Internet reception screen of the invention.

[Description of Reference Numerals]

- | | |
|----|--------------------------|
| 1 | Tuner |
| 2 | VIF Circuit |
| 3 | Video Detector |
| 4 | Video Amplifier |
| 5 | First Switching Circuit |
| 6 | CRT |
| 7 | SIF Circuit |
| 8 | Sound Detector |
| 9 | Sound Amplifier |
| 10 | Second Switching circuit |
| 11 | Mixing Circuit |
| 12 | Speaker |

- 13 Operating Unit
- 14 Microcomputer
- 15 On-Screen Display Circuit
- 16 Modem
- 17 Carrier Amplifier
- 18 Internet Circuit
- 19 Video Output Amplifier
- 20 Sound Output Amplifier

[Name of the Document] Abstract of the Disclosure

[Abstract]

[Purpose] It is a purpose of the invention to permit the connection state of a telephone line to be recognized on the screen of a television receiver, even in the state where the television receiver having an Internet receiving function is receiving television signals.

[Means for Fulfilling the Purpose] In order to view Internet information, a modem 16 is controlled to connect the telephone line to a provider, so that data can be transmitted and received via the modem 16. In accordance with the data received by the modem 16, information is transmitted from an Internet circuit 18 to a microcomputer 14 to indicate that the telephone line is in the process of connection to the provider, connection is completed, connection is failed, or provider is busy, or the like. Then the microcomputer 14 controls an OSD circuit 15 to output character signals on the screen of the television receiver, on the basis of said information, and in accordance with the state of the telephone line.

[Drawing to be Selected] FIG. 1.

FIG. 1

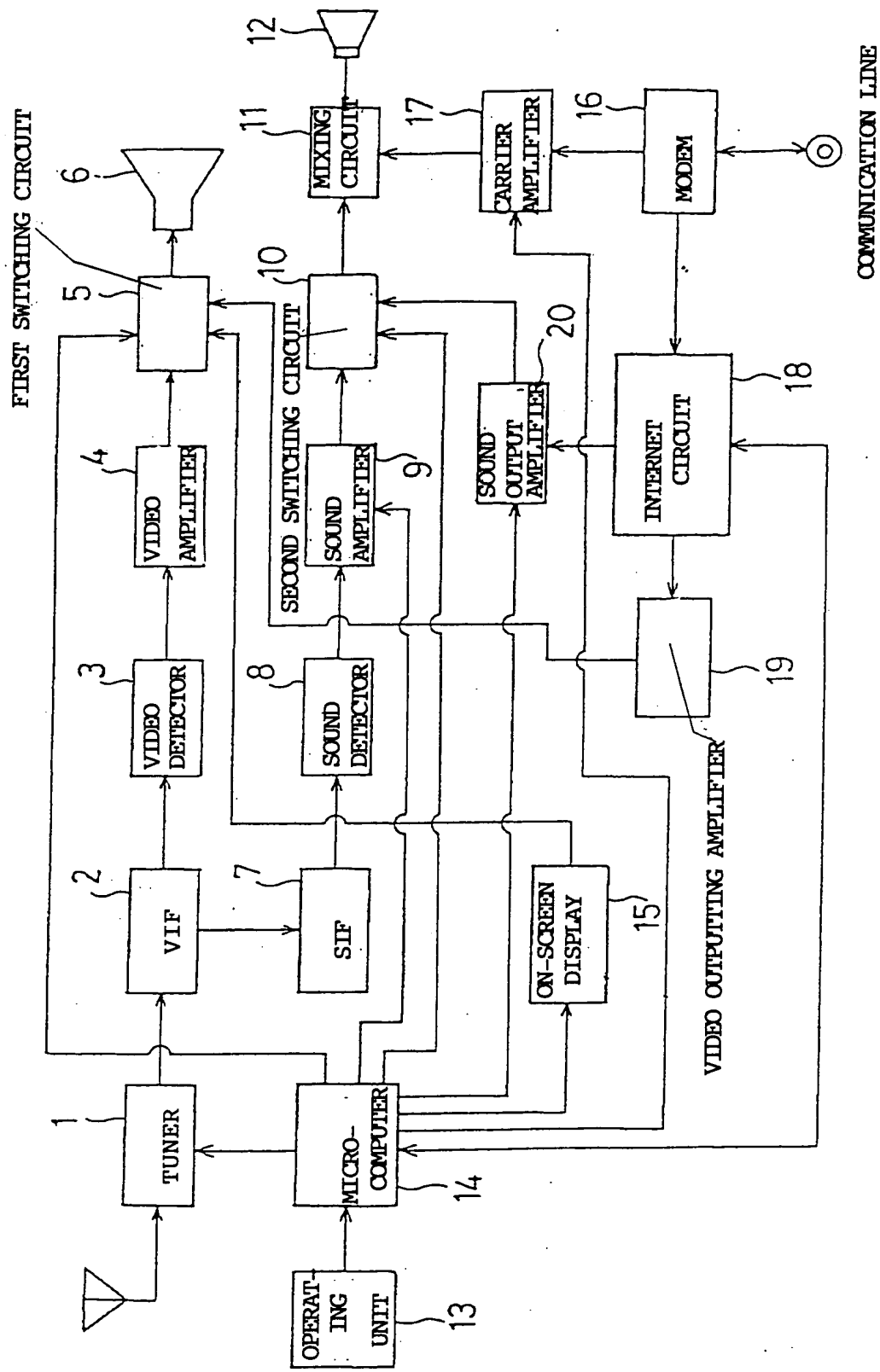


FIG. 2

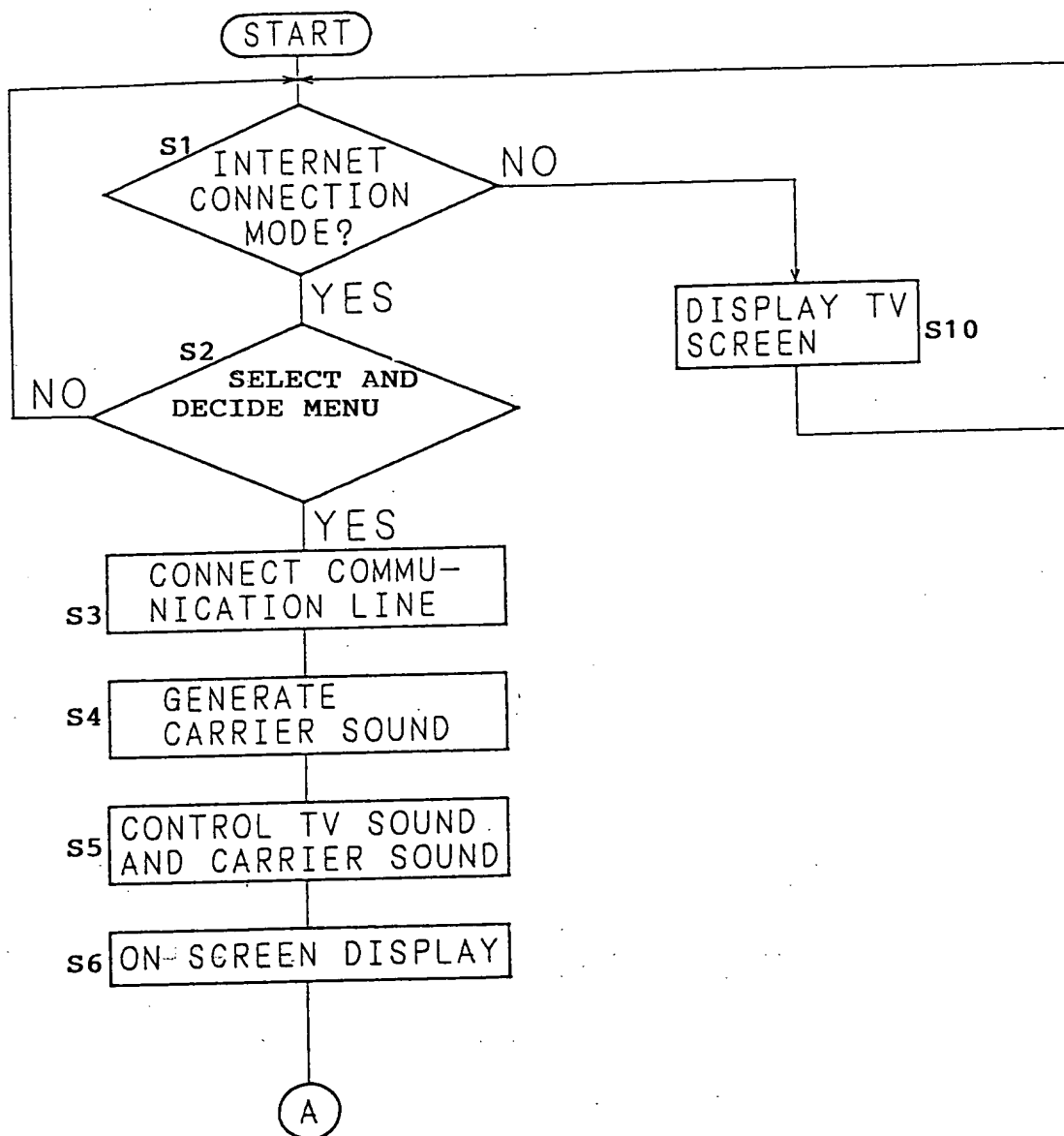


FIG. 3

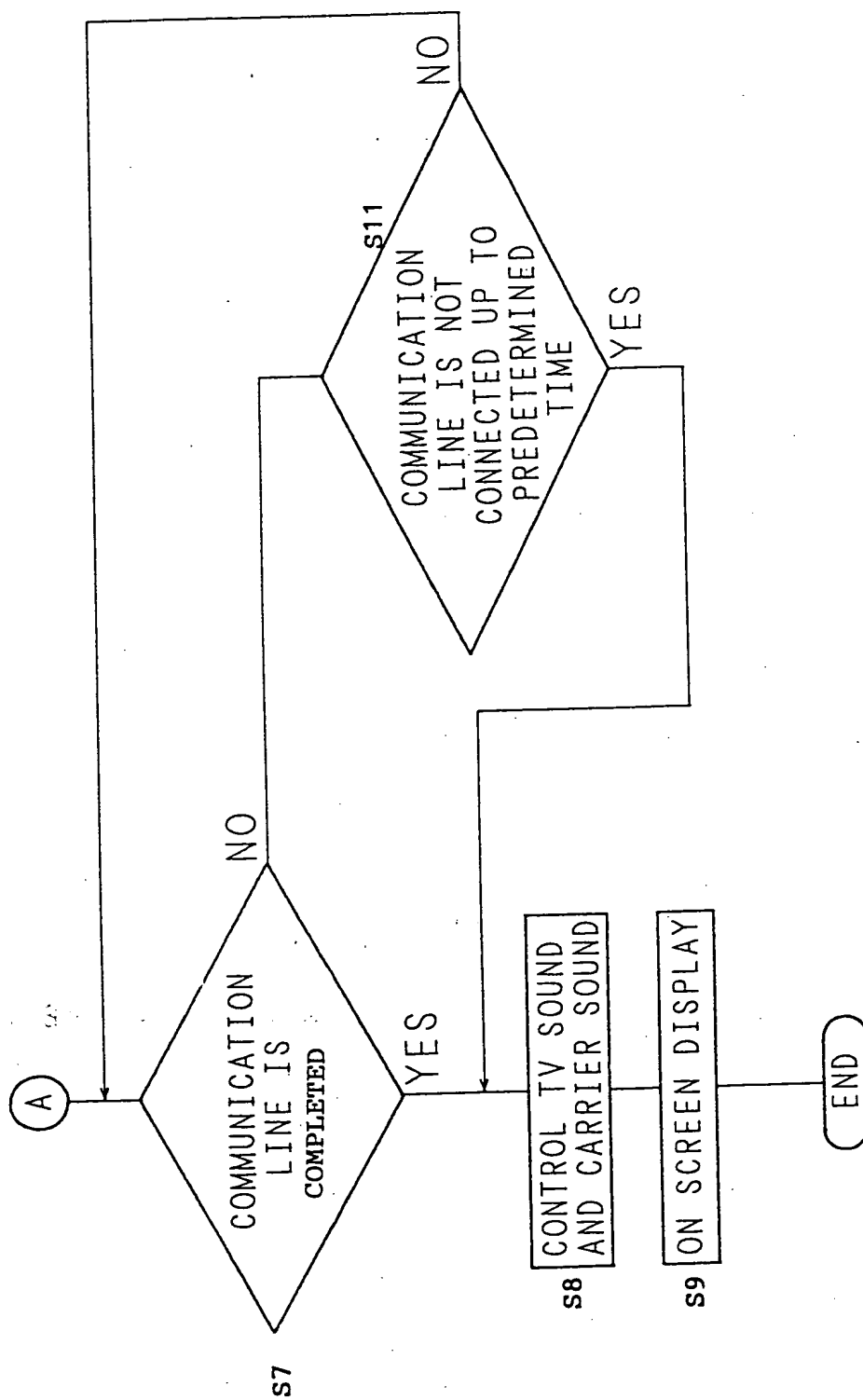


FIG. 4

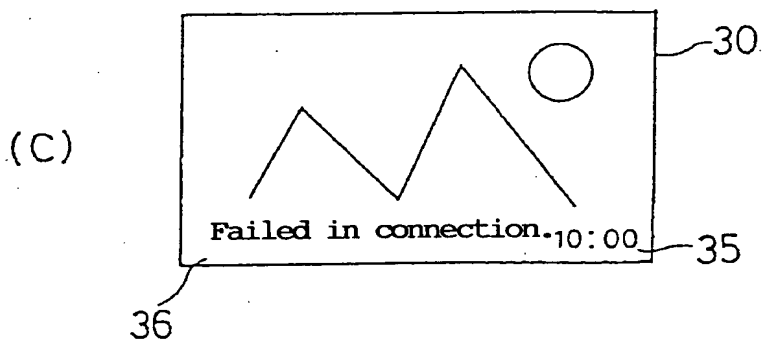
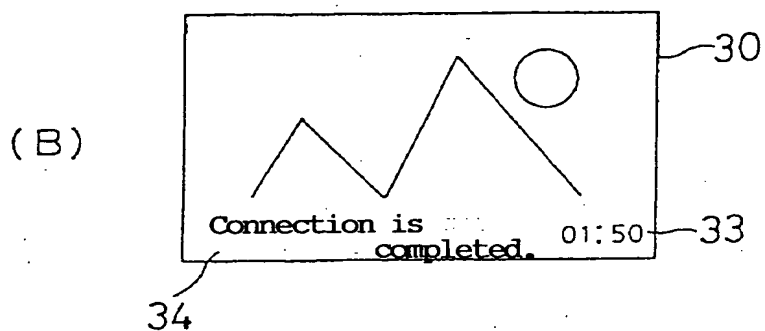
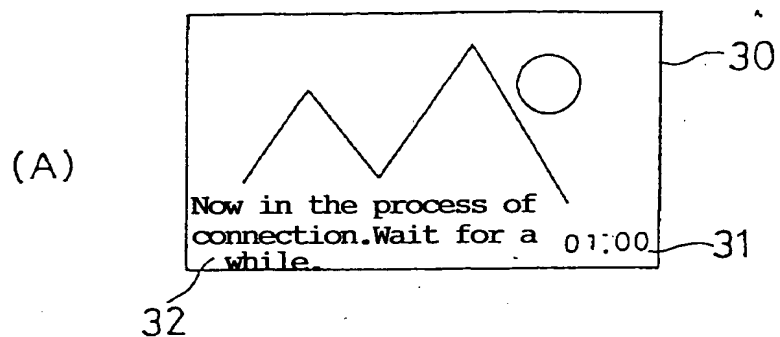


FIG. 5

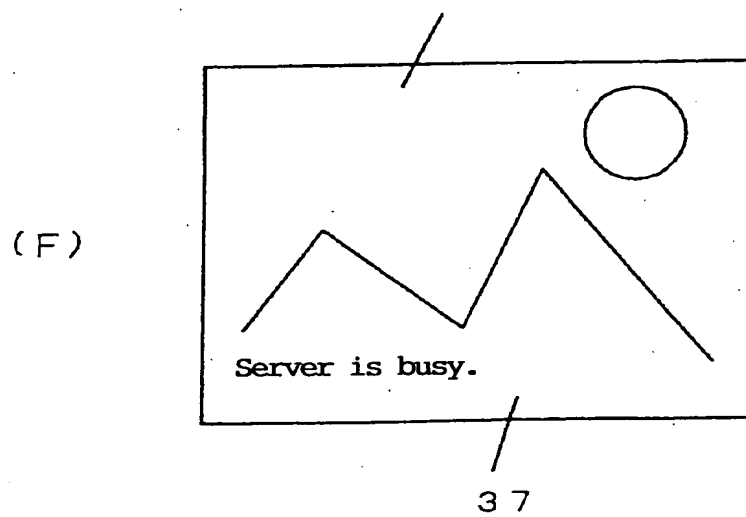
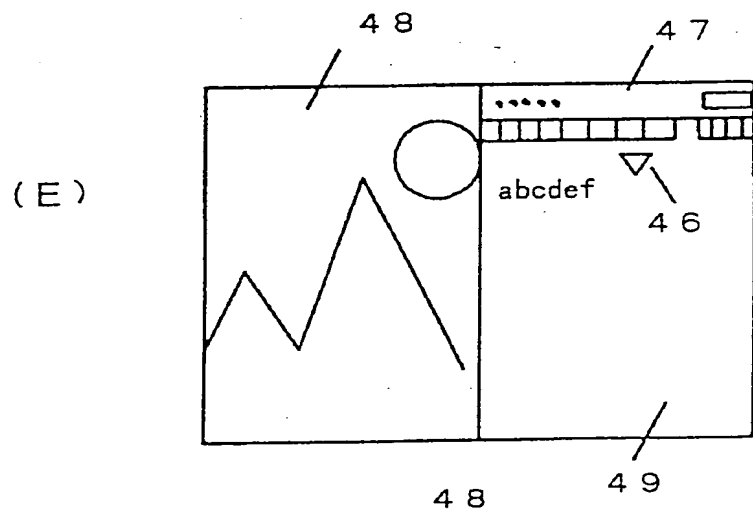
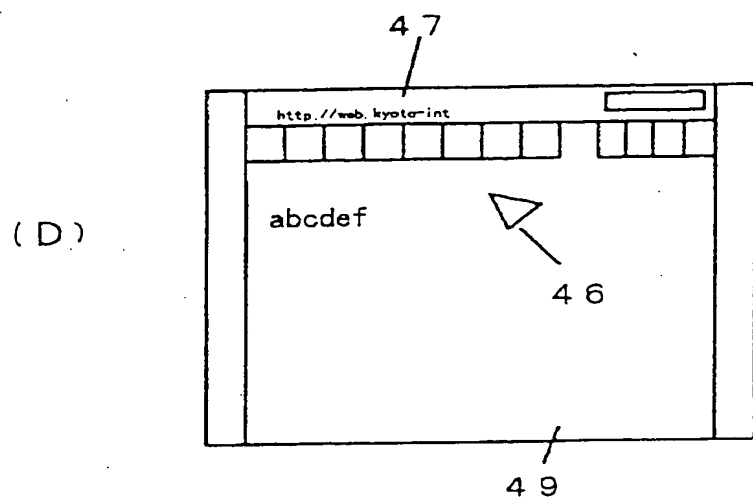


FIG. 6

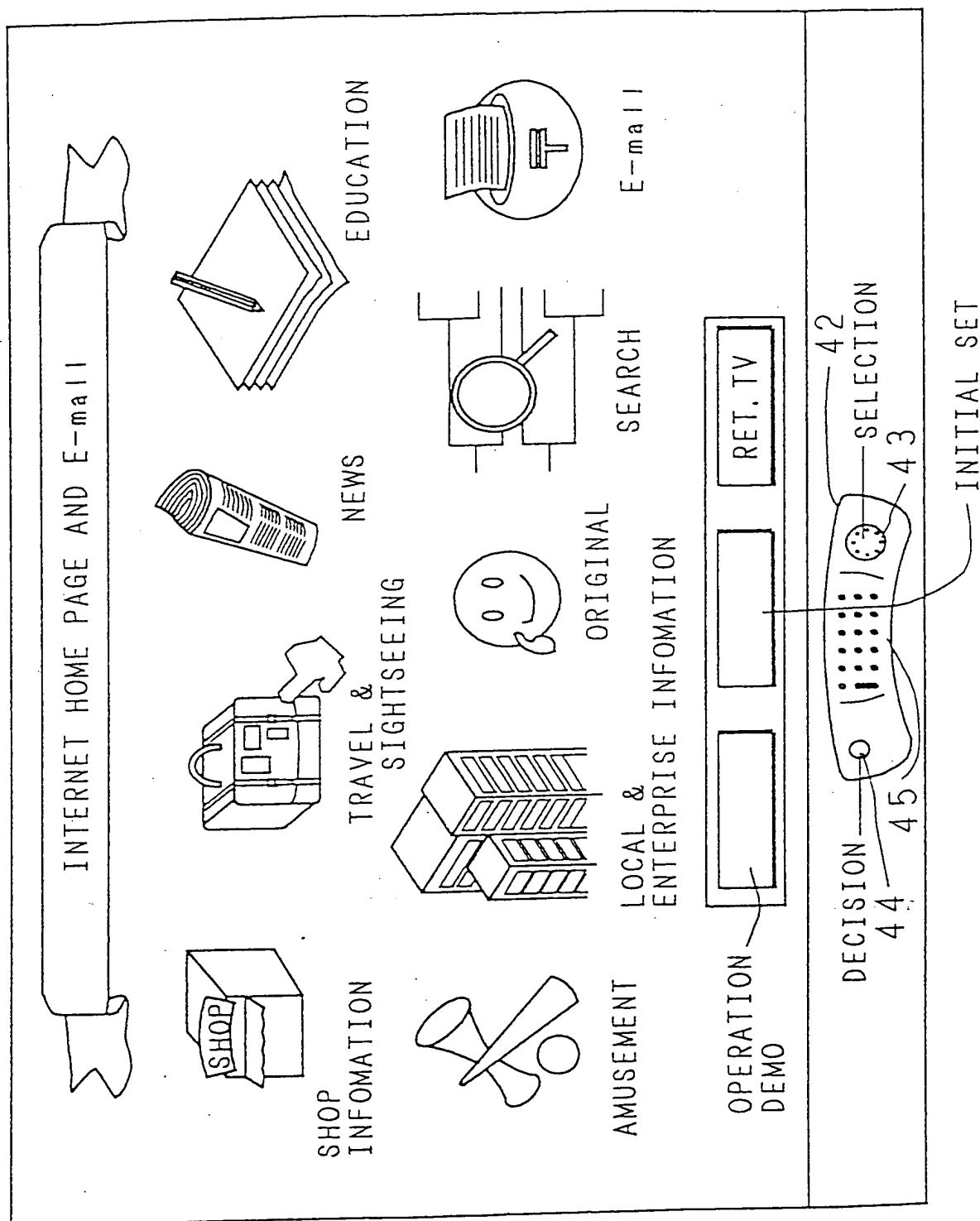


FIG. 7

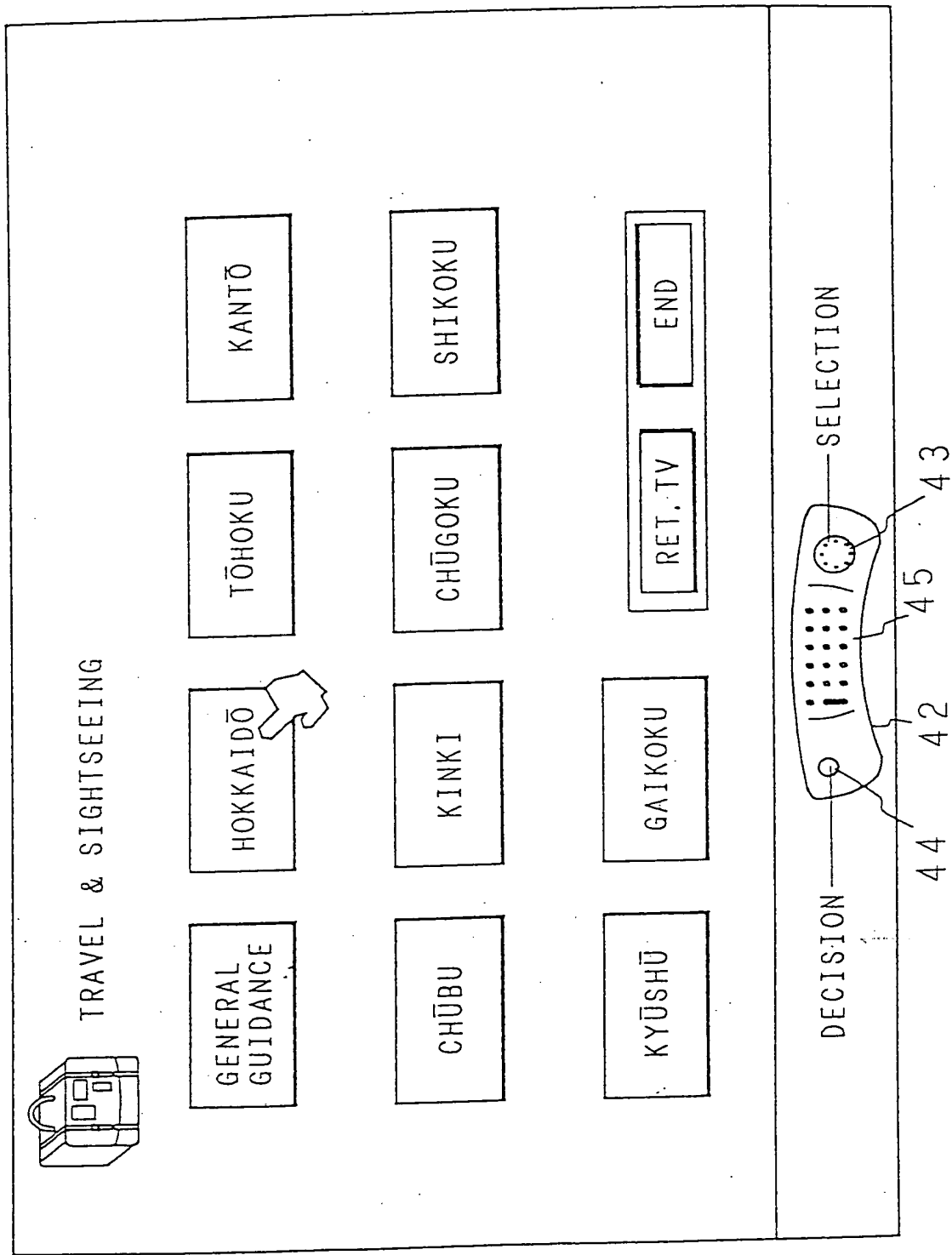
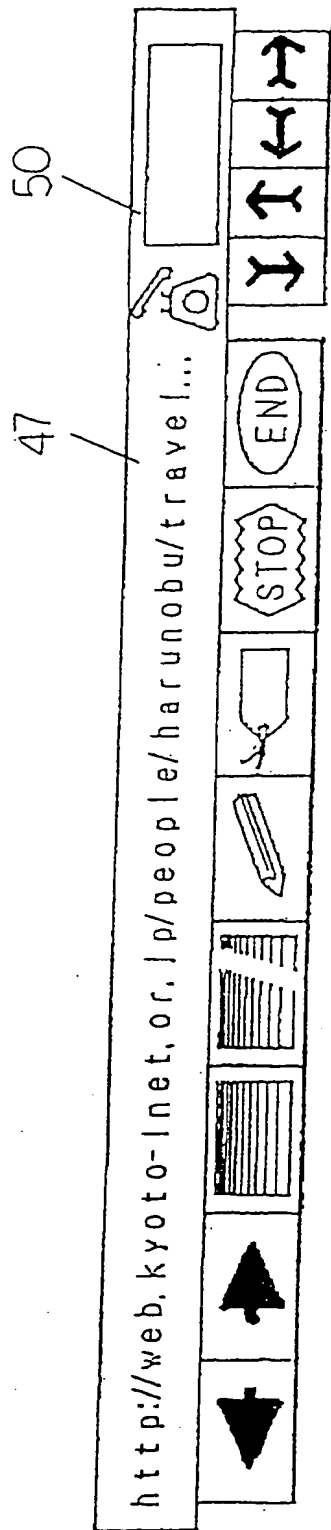
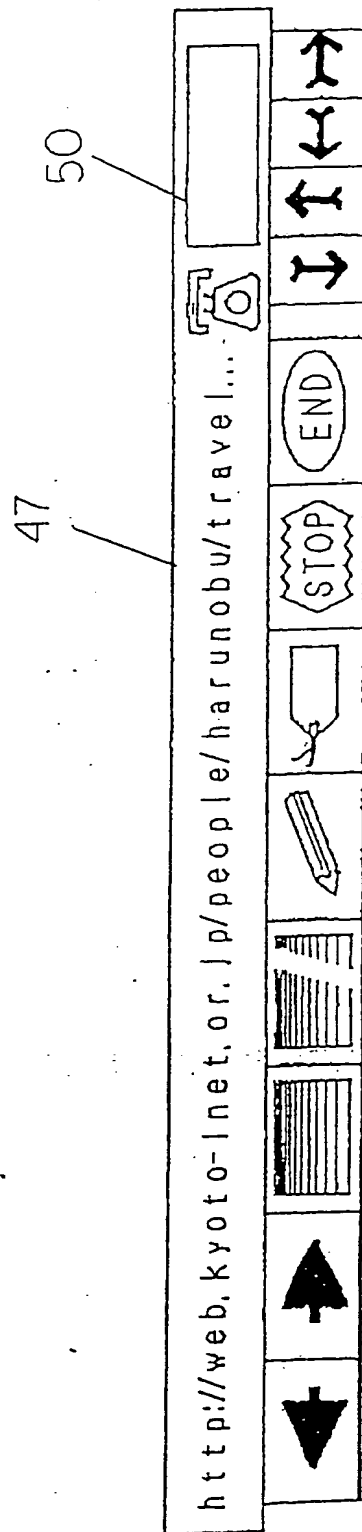


FIG. 8

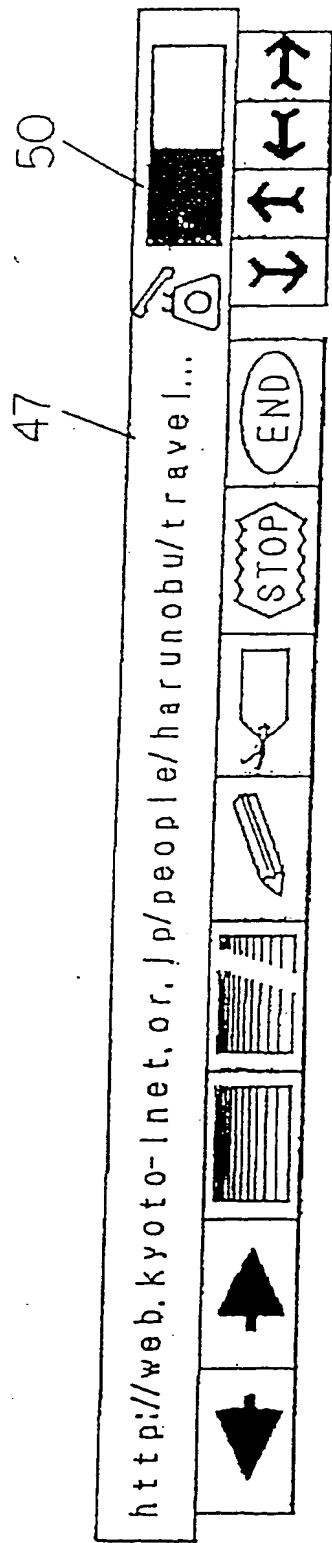


A

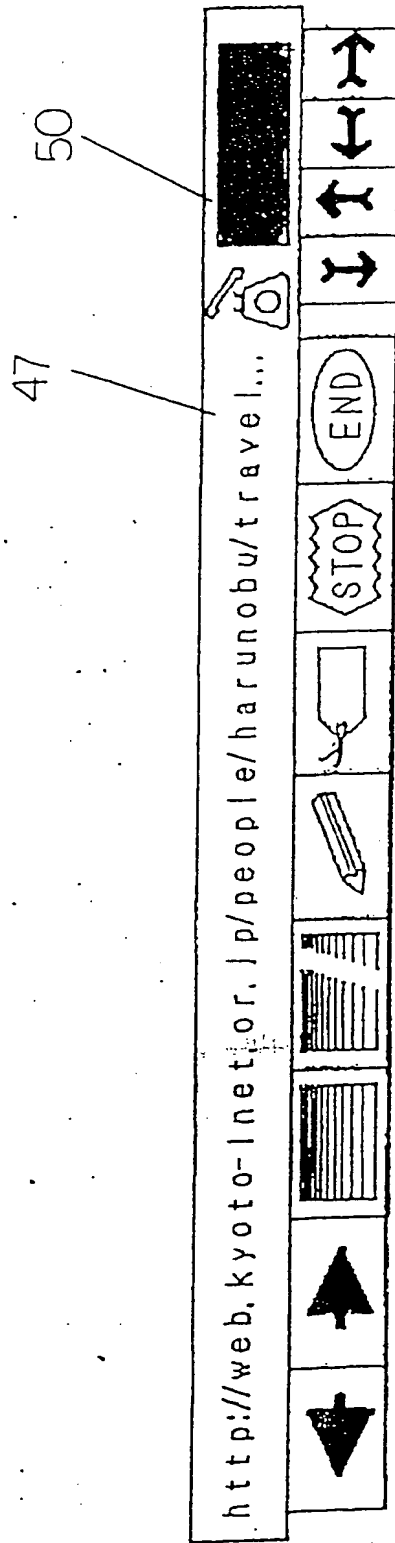


B

FIG. 9



A



B